

Appl. No. 10/618,060  
Arndt. dated July 6, 2006  
Preliminary Amendment

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**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings of claims in the application:

**Listing of Claims:**

1                   Claims 1-15 (Cancelled).

1                   16. (New) A system design method comprising:  
2                   receiving a system design including components connected via component ports  
3                   from a system designer;  
4                   for each of the component ports, identifying a set of alternative  
5                   bus/communication protocols supported by the component port;  
6                   comparing the sets of alternative bus/communication protocols of the component  
7                   ports to identify a subset of the bus/communication protocols supported by all of the component  
8                   ports; and  
9                   selecting one of the subset of the bus/communication protocols to implement  
10                  connections between the components via the component ports.

1                   17. (New) The system design method of claim 16, wherein comparing the sets  
2                  of alternative bus/communication protocols comprises:  
3                   comparing a parameter value of a first one of the set of alternative  
4                   bus/communication protocols supported by a first one of the component ports with  
5                   corresponding parameter values of each of the sets of alternative bus/communication protocols  
6                   supported by the other component ports to identify the subset of the bus/communication  
7                   protocols having compatible parameter values.

1                   18. (New) The system design method of claim 16, wherein comparing the sets  
2                  of alternative bus/communication protocols comprises:  
3                   comparing a operation of a first one of the set of alternative bus/communication  
4                   protocols supported by a first one of the component ports with corresponding operations of each  
5                   of the sets of alternative bus/communication protocols supported by the other component ports to  
6                   identify the subset of the bus/communication protocols having compatible operations.

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1           19. (New) The system design method of claim 18, wherein the subset of the  
2 bus/communication protocols having compatible operations includes a first operation associated  
3 with a first one of the component ports and a complementary operation associated with at least  
4 one of the other component ports.

1           20. (New) The system design method of claim 16, wherein comparing the sets  
2 of alternative bus/communication protocols comprises:

3                 comparing a connection value of a first one of the set of alternative  
4 bus/communication protocols supported by a first one of the component ports with  
5 corresponding connection values of each of the sets of alternative bus/communication protocols  
6 supported by the other component ports to identify the subset of the bus/communication  
7 protocols having compatible connection values.

1           21. (New) The system design method of claim 18, wherein the subset of the  
2 bus/communication protocols having compatible connection values includes an input for a first  
3 operation associated with a first one of the component ports and an output for the first operation  
4 associated with at least one of the other component ports.

1           22. (New) The system design method of claim 16, wherein comparing the sets  
2 of alternative bus/communication protocols comprises:

3                 comparing a role value of a first one of the set of alternative bus/communication  
4 protocols supported by a first one of the component ports with corresponding role values of each  
5 of the sets of alternative bus/communication protocols supported by the other component ports to  
6 identify the subset of the bus/communication protocols having compatible role values, wherein  
7 each role value is associated with at least one connection value, wherein each connection value is  
8 associated with at least one operation, wherein each operation is associated with at least one  
9 parameter value.

1           23. (New) The system design method of claim 16, wherein selecting one of  
2 the subset of the bus/communication protocols to implement connections between the  
3 components via the component ports comprises:

4                 determining the number of bus/communication protocols included in the subset;

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5 in response to the subset having a single bus/communication protocol, selecting  
6 the single bus/communication protocol; and

7 in response to the subset being an empty set, notifying the system designer that  
8 the connections between the components via the component ports cannot be made.

1 24. (New) The system design method of claim 23, further comprising:

2 in response to the subset including at least two bus/communication protocols,  
3 automatically selecting one of the subset of the bus/communication protocols to implement  
4 connections between the components via the component ports.

1 25. (New) The system design method of claim 23, further comprising:

2 in response to the subset including at least two bus/communication protocols,  
3 presenting the subset to the system designer; and

4 receiving a selection from the system designer of one of the subset of the  
5 bus/communication protocols to implement connections between the components via the  
6 component ports.

1 26. (New) The system design method of claim 16, wherein identifying a set of  
2 alternative bus/communication protocols supported by the component port comprises:

3 for each component port, retrieving corresponding component information from a  
4 component library storing previously defined component information, wherein the corresponding  
5 component information specifies at least a portion of at least one bus/communication protocol  
6 supported by the component port.

1 27. (New) The system design method of claim 26, wherein the component  
2 library is stored in a database.

1 28. (New) The system design method of claim 26, wherein the component  
2 information specifies at least a portion of at least one bus/communication protocol in an XML  
3 format.

1 29. (New) The system design method of claim 16, wherein at least one of the  
2 connections is between two components within a programmable logic device.

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1                   30. (New) The system design method of claim 16, wherein at least one of the  
2 connections is between a component within a first programmable logic device and a component  
3 external to the first programmable logic device.

1                   31. (New) The method of claim 16, further comprising:  
2                   analyzing the selected one of the subset of bus/communication protocols to  
3 identify a first set of connections defined by the selected one of the subset of bus/communication  
4 protocols;

5                   analyzing the component ports of the components to identify the connections used  
6 by the component ports of the components for the selected one of the subset of  
7 bus/communication protocols; and

8                   comparing the connections used by the component ports of the components with  
9 the first set of connections to determine a portion of the first set of connections necessary to  
10 implement the connections.